Using black soldier fly *Hermetia illucens* (Diptera: Stratiomyidae) for organic waste conversion

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Eligible for student prize

Worldwide, millions of tonnes of organic waste are dumped into landfills or inappropriately disposed of every year, causing environmental pollution and disease transmission, among others. One of the most effective and economically viable approaches of organic waste management is to use the CORS (Conversion of Organic Refuse by Saprophages) system. This is a bioconversion system using saprophagous invertebrates and their symbiotic microorganisms to turn organic waste into fertile organic residue, and nutritious invertebrate biomass. A large body of research has revealed that the larvae of a cosmopolitan non-pest insect species, *Hermetia illucens* L. (Diptera: Stratiomyidae), also known as the black soldier fly (BSF), is a promising bioconverter to be used by the CORS system. Our research aims to investigate theoretical and applied aspects underlying the potential use of BSF in establishing a value-added organic waste management system in New Zealand. The first BSF lab colony in the country has been established and maintained in a semi-artificial environment. As a part of our research, we have determined the suitability of three types of organic waste (brewer's waste, solid phase of pig manure, and semi-digested grass) for bioconversion by BSF larvae. Preliminary results indicate that, among the tested organic waste, brewer's waste is the most suitable material to be used in a BSF-CORS system, while semi-digested grass is the least suitable. The implications of our results and some highlights for future research will be discussed in this presentation.